Operator's Manual

HFR-8000

For Remote Tracing

Huvitz
Pacing Progress toward People

IMPORTANT NOTICE

This product may malfunction due to electromagnetic waves caused by portable personal telephones, transceivers, radio-controlled toys, etc. Be sure to avoid having the above objects, which affect the normal operation of the product, brought near the product.

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1. Introduction

1.1 System Configuration

- Frame Reader (HFR-8000)
- DCS Host (PC)

1.2 Main Features

- Binocular 3 dimensional tracing of frames guaranteeing more precision in frame fitting.

- Tracing of a demo lens or a pattern executes in two different modes, HI and LO. Especially the HI mode compensates the size by the tilting angle of the demo lens or the pattern.

- SEMI-AUTO frame-tracing mode is additionally provided for manual handling of th e stylus position into the frame groove especially when the groove is lopsided.

- SEMI-AUTO demo-lens-tracing mode is additionally provided for recognizing and processing concave shape.

- Barcode scanner interface is supported by default to provide a means to input job number.

- Variety of DCS communication options are provided to customize it for being com pliant with different types of Lab Management Software, such as data format, points of data, angle type, communication speed, size offset and more.

- Easy-to-use sliding door for protecting the frame reader from dusts being introduced inside of it.

- Powerful cooling fan for stabilizing the performance of the frame reader, especially

in an environment with continuous operation over a long period of time.

1.3 Classification

- Protection against electric shock: Class I(earthed)
- Installation Category: II
- Pollution Degree: 2

2. Safety Information

2.1 Introduction

Safety is everyone's responsibility. The safe use of this equipment is largely dependent upon the installer, user, operator, and maintainer. It is imperative that personnel study and become familiar with this entire manual before attempting to install, use, clean, service or adjust this equipment and any associated accessories. It is paramount that the instructions contained in this manual are fully under stood and followed to enhance safety to the patient and the user/operator. It is for this reason that the following safety notices have been placed appropriately within the text of this manual to highlight safety related information or information requiring special emphasis. All user, operators, and maintainers must be familiar with and pay particular attention to all warning and cautions incorporated herein.

⚠ WARNING

"Warning" indicates the presence of a hazard that could result in severe personal injury, death or substantial property damage if ignored.

⚠ NOTE

"Note" describes information for the installation, operation, or maintenance of which is important but hazard related if ignored.

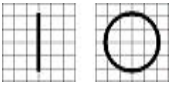
⚠ CAUTION

"Caution" indicates the presence of a hazard that could result in minor injury, or property damaged if ignored.

2.2 Safety Symbols

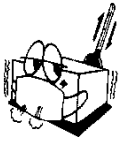
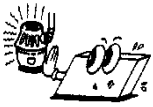
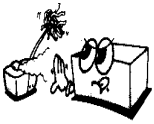
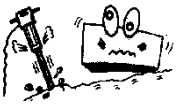
The International Electro technical Commission (IEC) has established a set of symbols for medical electronic equipment, which classify a connection or warn of any potential hazard. The classifications and symbol s are shown below.

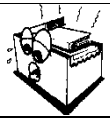
Save these instructions

	I and O on power switch represent ON and OFF respectively.
	This symbol identifies a safety note. Ensure you understand the function of this control before using it. Control function is described in the appropriate User's or Service Manual.
	Identifies the point where the system safety ground is fastened to the chassis. Protective earth connected to conductive parts of Class I equipment for safety purposes.
	Disposal of your old appliance 1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC. 2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities. 3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health. 4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

2.3 Environment factors

Avoid the following environments for operation or storage:

	Where the machine is exposed to water vapor. Don't operate the machine with wet hands Indoor use only
	Where the machine is exposed to direct sunlight.
	Where there are big changes in temperature. Optimal temperature range for normal operation is from 10°C to 40°C. (Humidity : 30 ~ 80%)
	Where there is a hot equipment nearby
	Where the humidity is extremely high or there is a ventilation problem.
	Where the machine is exposed to excessive shocks or vibrations.
	Where the machine is exposed to chemical material or explosive gas.

	Be cautious so that things like dust and metal do not fall inside the machine.
	Don't disassemble or open the product. HUVITZ does not take responsibility for the possible problems
	Be careful not to block the fan located on the backside of the machine.
	Don't plug the AC power cord into the outlet unless all parts of the machine are completely connected. Otherwise, it will cause severe damage on the machine.
	Pull out the power cord with holding the plug, not the cord. To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

This instrument must be followed by these following conditions:

1. Operation

   An ambient temperature range of 10℃ ~ 40℃ (50°F ~ 104°F)

   A relative humidity range of 30% ~ 80%

   An atmospheric pressure range of 800 ~ 1060hpa

   An indoor use, Altitude up to 2000 m

2. Transportation

   An ambient temperature range of -25℃ ~ 70℃ (-13°F ~ 158°F)

   A relative humidity range of 10% ~ 95% (with non-condensing)

   An atmospheric pressure range of 500 ~ 1060hpa

3. Storage
   An ambient temperature range of -25℃ ~ 70℃ (-13°F ~ 158°F)
   A relative humidity range of 10% ~ 95% (with non-condensing)
   An atmospheric pressure range of 700 ~ 1060hpa

4. Temporary Overvoltage
   Short-term temporary overvoltage: 1440V
   Long-term temporary overvoltage: 490V

Please avoid where the equipment is exposed to excessive shocks or vibration.

Operation time : Max 6 minutes for short-term operation
Rest time : Min. 2 minutes

2.4 Safety Precautions

This equipment has been developed and tested according to safety standards as well as national and international standards. This guarantees a very high degree of safety for this device. The legislator expects us inform the user expressively about the safety aspects in dealing with the device. The correct handling of this equipment is imperative for its safe operation. Therefore, please read carefully all instructions before switching on this device. For more detailed information, please contact our Customer Service Department or one of our authorized representatives.

① This equipment must not be used (a) in an area that is in danger of explosions and (b) in the presence of flammable, explosive, or volatile solvent such as alcohol, benzene or similar chemicals.

② Do not put or use this device in humid rooms. Humidity should be maintained between 50% and 80% for normal operation. Do not expose the device to water splashes, dripping water, or sprayed water. Do not place containers containing fluids, liquids, or gases on top of any electrical equipment or devices.

③ The equipment must be operated only by, or under direct supervision of a properly trained and qualified person.

④ The service technician of Huvitz or the technician authorized by Huvitz may only carry out modifications of this equipment.

⑤ Customer maintenance of this equipment may only be performed as stated in the User's Manual and Service Manual. Any additional maintenance may only be performed by the service technician of Huvitz or the technician authorized by Huvitz.

⑥ The manufacturer is only responsible for effects on safety, reliability, and performance of this equipment when the following requirements are fulfilled: (1) The electrical installation in the respective room corresponds to the specifications

stated in this manual and (2) This equipment is used, operated, and maintained according to this manual and Service Manual.

⑦ The manufacturer is not liable for damage caused by unauthorized tampering with the device(s). Such tampering will forfeit any right to claim under warranty.

⑧ This equipment may only be used together with accessories supplied by Huvitz. If the customer makes use of other accessories, use them only if their safe usability under technical aspect has been proved and confirmed by Huvitz or the manufacturer of the accessory.

⑨ Only person who has undergone proper training and instructions are authorized to install, use, operate, and maintain this equipment.

⑩ Keep accompanied manual(s) or technical materials, such as the User's Manual and Service Manual, in a place easily accessible at all times for persons operating and maintaining the equipment.

⑪ Do not force cable connections. If a cable does not connect easily, be sure that the connector (plug) is appropriate for the receptacle (socket). If you cause any damage to a cable connector(s) or receptacle(s), let the damage(s) be repaired by an authorized service technician.

⑫ Please do not pull on any cable. Always hold on to the plug when disconnecting cables.

⑬ Before every operation, visually check the equipment for exterior mechanical damage(s) and for proper function.

⑭ Do not cover any ventilation grids or slits. Immediately turn off and unplug any equipment that gives off smoke, sparks, strange noises, or odors.

⑮ Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

⑱ This machine might be impaired if used in a manner not specified by manufacturer and this manual.

WARNING

- The equipment should be properly installed and operated based on the instructions on this manual.

WARNING

- Do not disassemble the product without the proper training. It may cause the electric shock, serious hurt during the operation or cause the malfunction of the product.
- The product should be properly installed and maintained at the horizontally leveled place. Otherwise, it may affect the normal operation of the product.
- Do not force on the stylus of frame reader. It may cause the malfunction of the product.
- Be sure that the stylus of frame reader is not interfered with the human body or other objects during the operation. Otherwise, it may cause the hurt or malfunction of the product.

⚠ CAUTION

- When moving the equipment, first fix the stage and check whether the power supply is off.
- In case of setting down the equipment, make sure not to be interfered with the obstacles. Setting down the product slowly in order to prevent the hurt of human body or damage to the product.
- When moving the equipment, make sure the locking device and the screw for the cover are properly tightened.
- In case of packaging the equipment, use the recommended packaging material and method in order to prevent the damage during the transportation.

⚠ CAUTION

- Be sure to use the standard accessories or tools provided together with the product for the maintenance. Otherwise, it may cause the malfunction of the product.

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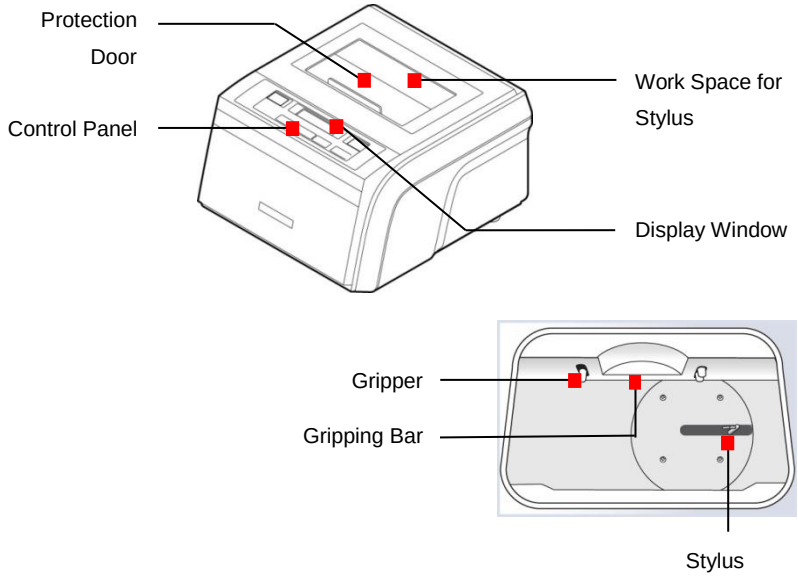
- Be sure to use the standard accessories or tools provided together with the product for the maintenance. Otherwise, it may cause the malfunction of the product.

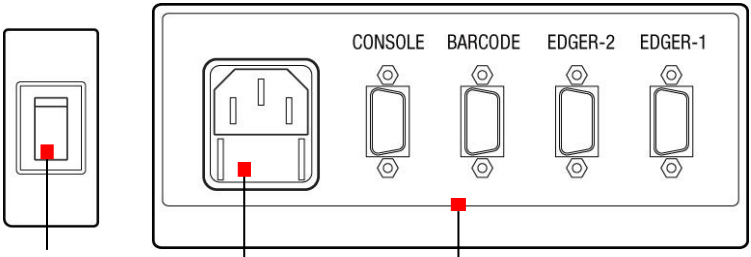
3. System Configuration

3.1 Frame Reader

Front View



Rear View



3.2 Standard Accessory

Standard Frame

Standard Pattern

Pattern Holder

4. Installation Procedure

Install a Frame Reader in a sequence below.

① Remove the shock-absorbing material from the package box and pull out the Frame Reader carefully.

② Remove the shock-absorbing material from the workspace of Stylus.

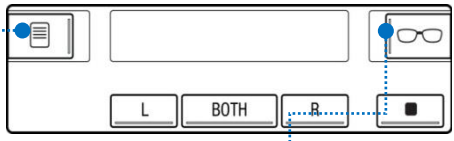
③ Plug the Power Cable into the power inlet at the back of the product and turn on the power to check the initial operation.

④ If the initial operation works properly, turn off the instrument.

⑤ Connect Edger and Frame Reader by using a 9-pin D-sub Crossed Interface Cable and make sure the connectors are fixed firmly by tightening the scre ws in the cable connector.

5. Operation

5.1 Command Buttons



Menu

Menu Selection

- **CONFIG** (System Configuration)
  ☞ *Refer to the section 6.1 Configuration of Frame Reader*
- **CALIB** (Automatic Calibration)
  ☞ *Refer to the section 7.1 Automatic Calibration of Frame Reader*
- **ETC** (User Preferences)
  ☞ *Refer to the section 6.2 User Preferences of Frame Reader*

Frame Material

Selection of Frame Material

- **METAL**
- **PL-HARD** (Hard Plastic)
- **PL-SOFT** (Soft or flexible Plastic)

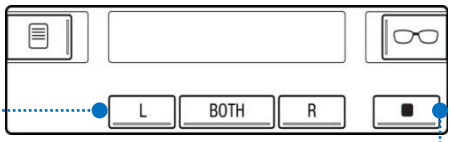
Before tracing a frame, choose one of the material types that is used by the edger for such as predefined size adjustment.

Selection of Pattern Tracing Mode

- **LO CURV** (2D Tracing)
- **HI CURV** (3D Tracing)

When the Pattern Holder is loaded in the Frame Reader, it automatically recognizes the pattern tracing mode.

☞ *When tracing a demo lens of higher curve, using the HI CURV mode could give more precision in the size.*



L / BOTH / R

Tracing Buttons

- **BOTH** (Both sides)
- **L** (Left-only)
- **R** (Right-only)

☞ *When it's for a frame, holding down one of the tracing buttons for 2 seconds will executes the SEMI-AUTO tracing mode which is to aid tracing a frame with its frame groove lopsided by allowing the operator position the stylus tip in the frame groove center.*

☞ *When it's for a demo lens, holding down one of the tracing buttons for 2 seconds will executes the SEMI-AUTO tracing mode which is to allow recognizing concave shape while tracing. Otherwise, it doesn't recognize concave shape and reform it to make convex shape in order to avoid unintended dents on the final lens. This is because the final lens could be uneven on the edge if it recognizes an unintended notch which is used for pulling out the wire of a half-rim frame.*

STOP

Stop Button

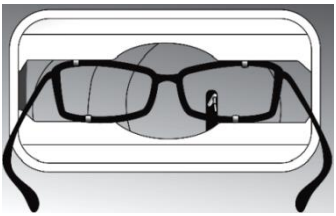
It stops any ongoing operation or cancels the execution of a menu function.

☞ *The system will halt when the stop button is pressed during its initialization process.*

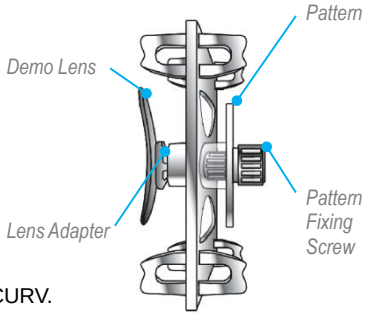
5.2 Tracing

Frame Tracing

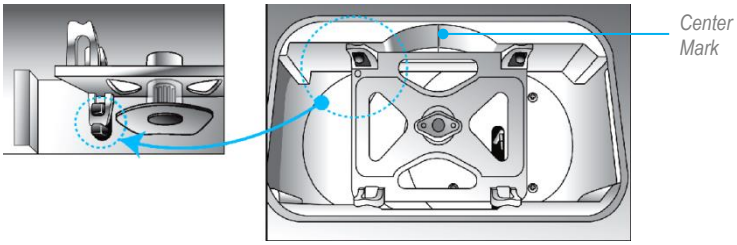
① Place the upper rim of a frame between the grippers on the rear gripping bar first and then the lower rim between the grippers on the front gripping bar.
② Move the frame so that the middle of it is aligned with the center mark on the gripping bar.
③ Select the frame material by the material selection button.
④ Press one of the tracing buttons, BOTH for both sides, R for right, or L for left.



Pattern Tracing



① Put a pattern or a blocked demo lens in the pattern holder. The demo lens should be blocked on the horizontal axis.
② Press the FRAME button to select a tracing mode between LO CURV and HI CURV.
③ Press one of the tracing buttons, R for right, or L for left.

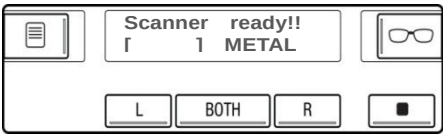


[Loading the Pattern Holder]

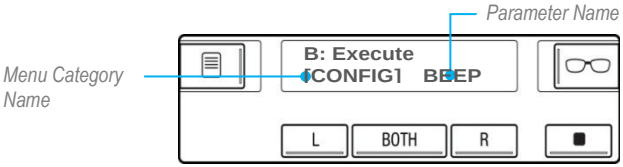
6. Using the Menu

6.1 Configuring the Frame Reader

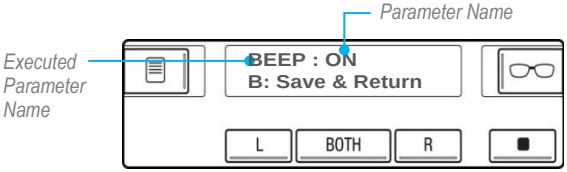
- Operating the Menu Mode



- Press the MENU button and then BOTH button to enter the menu mode
- Press the STOP button over 2 seconds to exit the menu mode



- MENU button: changing the selection of menu category
  → Holding down the button for 2 seconds reverses the selection
- FRAME button: selecting a configuration parameter in a menu category
  → Holding down the button for 2 seconds reverse the selection
- BOTH button: executing a selected parameter for change



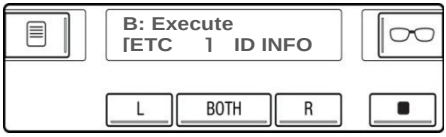
- R / L button: changing the value of the executed parameter
- BOTH button: saving the change for the executed parameter and return to the menu
- STOP button: canceling the execution and return to the menu

- Configuration Parameters

Name	Description	Option List
BEEP	Buzzer activation	· ON · OFF
FRAME	Default frame material	· METAL · PL-HARD · PL-SOFT
EDGER-1	Target device for EDGER-1 port *- Selecting 'NONE' disable the port*	· EDGER · PC · NONE
PROTO-1	Data communication protocol for EDGER-1 port	· HUVITZ · DCS · DCS_Z
BPS-1	Baud rate for EDGER -1 port	· 9600 · 14400 · 19200 · 57600 · 115200 · 38400
EDGER-2	Target device for EDGER-2 port *- Selecting 'NONE' disable the port*	· EDGER · PC · NONE
PROTO-2	Data communication protocol for EDGER-2 port	*Same as 'PROTO-1'*
BPS-2	Baud rate for EDGER -2 port	*Same as 'BPS-1'*
BARCODE	Barcode Reader port	· ON · OFF
BPS-BC	Baud rate for BARCODE port	*Same as 'BPS-1'*

6.2 Setting User Preferences

- Refer to 6.1 for operating the Menu Mode



- User Preference Parameters

Name	Description	Option List
ID INFO	Product identification	
VERSION	Software version number	
DBL	Bridge size input option for tracing single side	・YES ・NO
SEMI-AT	Prompt option SEMI-AUTO tracing mode	・YES ・NO
MINI FR	Low-speed-tracing option for frames with minimal vertical size	・YES ・NO
FPD OFF	FPD offset	-2.99 ~ +2.99
JOB NO.	Job number reset option *- Turning on the option keep the last job number even after turning off the power and the last job number is continued next time it's turned on*	・YES ・NO
TRANSMT	Data transmission option for when both the edger 1 and 2 ports are turned on *- AUTO option transmits automatically* *- USER option transmits through user-selecting output port*	・AUTO ・USER
EXIT	Exits the menu mode	

7. Using the Remote Tracing Function

7.1 Interface Specification

Version Information

- Compatible with DCS V3.07 or its compliances

RS232C Interface

The basic specification of the communication port of the Frame Reader for interfacing PC follows the information below.

- Baud Rate: 115200, 57600, 38400, 19200, 14400 or 9600
- Data Bit: 8
- Stop Bit: 1
- Parity: None
- Flow control: None

Data Format

- Format: ASCII Absolute, Binary Absolute, Binary Differential, Packed Binary
- Data Points: 1440, 1200, 1000, 800, 500, 400
- Radius mode: Even, Uneven
- Side: Both, Right, Left
- Tracing Type: Frame, Pattern

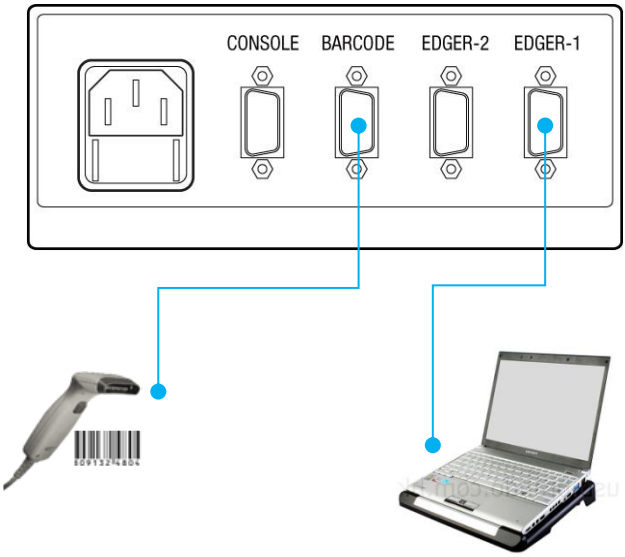
7.2 Connecting to a DCS host

Before connecting the Frame Reader to any PC which is running a lab management software or a host program on it, make it sure to turn the instrument off.

- Procedure

① Connect PC to EDGER1 port with a 9-pin DSUB crossed serial cable
② Connect a barcode reader to the BARCODE port
③ Turn on the Frame Reader
④ Set the DCS options for the DCS host

- Cable connection



NOTE

- BARCODE port delivers power through it.

7.3 DCS Options

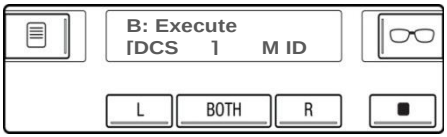
To access the DCS options in the menu mode, at least one of the EDGER-1 and EDGER-2 port should be set as DCS.

• Procedure for Menu Execution

① Press MENU button and select the "CONFIG" menu
→ Refer to the section 6.1 for menu operation

② Set at least one of EDGER-1 and EDGER-2 port like bellows
- EDGER-1/2 : PC
- PROTO-1/2 : DCS or DCS_Z

③ Change the menu category to DCS (DCS menu category is activated only if one of the edger ports is set as DCS)



• DCS Parameters

Name	Description	Option List
M ID	Machine Id	00 ~ 99
TIMEOUT	Timeout interval for communication	10 ~ 90 seconds
DATA PT	Data points for DCS output	・400 ・500 ・800 ・1000 ・1200 ・1440
FORMAT	Data format for DCS output	・ASCII ABS

	・ *ASCII ABS = ASCII Absolute* ・ *BIN ABS = Binary Absolute* ・ *BIN DIF = Binary Differential* ・ *PACKED BIN = Packed Binary*	・ BIN ABS ・ BIN DIF ・ PACKED BIN
ANGLE	Angle type for DCS output	・ EVEN ・ UNEVEN
FR-SIZE	Size offset of frame data for DCS output (in terms of circumference)	-9.99 ~ +9.99
PT-SIZE	Size offset of pattern data for DCS output (in terms of circumference)	-9.99 ~ +9.99
MIRROR	Mirroring option for DCS output when single side is traced	・ YES ・ NO
FRAME	Default frame material for a job for DCS output ・ *METAL = Metal* ・ *PL-HARD = Hard Plastic* ・ *PL-SOFT = Soft Plastic* ・ *UNDEFIN = Undefined* ・ *OFF = Do not output frame material info.*	・ METAL ・ PL-HARD ・ PL-SOFT ・ UNDEFIN ・ OFF
ZTILT	Unit of ZTILT value	・ DEGREE ・ RADIAN

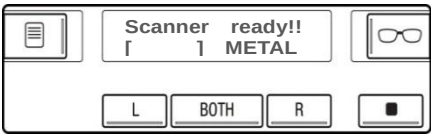
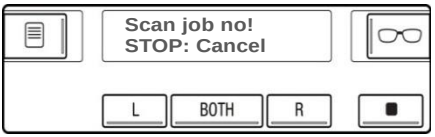
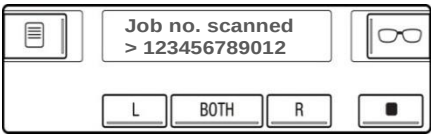
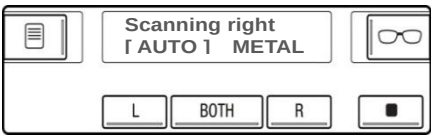
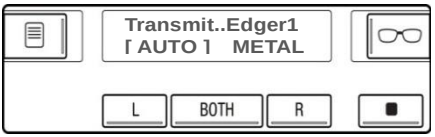
7.4 Using the Barcode Interface for Inputting Job Number

HFR-8000 supports barcode-scanning function through the 'BARCODE port' by setting the 'BARCODE' option to 'ON'. This allows it to assign a job number for a new tracing job. Go to the 'CONFIG' menu and set the options like below.

- Options for the barcode interface
  - BARCODE: ON
  - BPS-BC: 9600 (depends on the setting of a barcode scanner)

- Setup for Barcode Scanner
  - Baud rate: 9600 (or what else bps that can be matched with the BPS-BC option in the Frame Reader)
  - Termination code: <CR>, <LF> or <CR><LF>

- Inputting sequence of Job Number with a barcode scanner

Press a button to execute frame or pattern- tracing	
Tracer beeps and prompts to scan a barcode	
Scan a barcode and it'll display the number for a second on the screen	
Frame-tracing is automatically started after the job number input	
The job number is transmitted with the shape data through the EDGER-1 port	

The job number scanned by the barcode reader is recognized by the target device which is connected to the 'EDGER-1' port with the protocol DCS or DCS_Z.

8. System Maintenance

8.1 Automatic Calibration of Frame Reader

The Frame Reader requires calibration in following cases.

- Traced shape is off axis
- Traced shape has smaller or bigger size
- Stylus tip is not locating the frame groove properly
- Frame Reader issues height or dimension error for frames or patterns, especially when it seems that the mechanical stroke is enough for a frame or a pattern

Automatic calibration for frame reader consists of three parts: Stroke, Frame, Pattern. In case of any change happened in the stylus, do the full calibration in the following sequence.

- Stroke calibration
- Frame calibration
- Pattern calibration

Otherwise, just perform frame or pattern calibration correspondingly.

Frame Calibration

- Purpose
  Detecting the frame-reading position, axis, and calibrating the size.

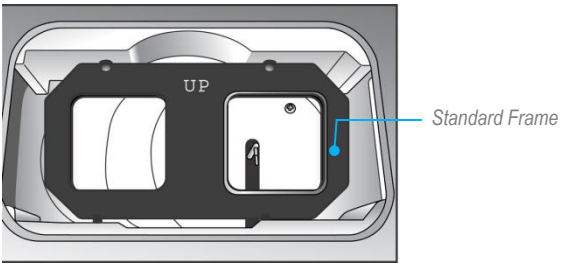
- Procedure

① Load the standard frame which is provided as a standard accessory
② Press MENU button and select the "CALIB >> FRAME" menu
  → Refer to the section 6.1 for menu operation
③ Press the BOTH button two times to trigger the automatic calibration
  → It traces the standard frame on both sides twice

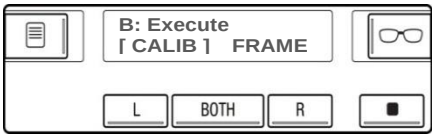
④ If it result in any error, check if the standard frame is loaded in correct position and try again

→ If it fails again, contact proper service engineer for maintenance

• Preparation for the FRAME calibration



• FRAME calibration menu



NOTE

- Calibration results are stored in its permanent memory automatically right after the completion of each calibration.
- Be sure to check the related information before executing the calibration work because you cannot get back the machine to the previous status.
- When a calibration seems not to be done properly, try executing the calibration again.
- During the calibration, you may press the STOP button to abort the execution.

Pattern Calibration

- Purpose

  Detecting the pattern-reading position, axis, and calibrating the size.

- Procedure

① Load the pattern holder with the standard pattern attached

② Press MENU button and select the "CALIB >> PATTERN" menu

→ Refer to the section 6.1 for menu operation

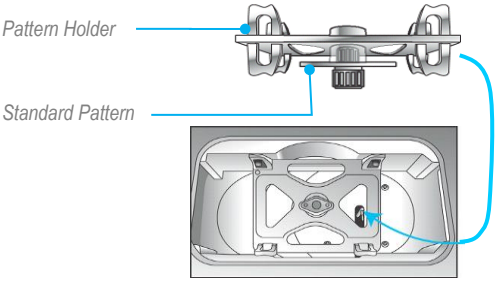
③ Press the BOTH button two times to trigger the automatic calibration

→ It traces the standard pattern twice

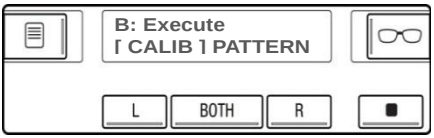
④ If it result in any error, check if the standard pattern is loaded in correct position and try again

→ If it fails again, contact proper service engineer for maintenance

- Preparation for the PATTERN calibration



- PATTERN calibration menu



Stroke Calibration

- Purpose

  Detecting the maximum traceable dimension for frames and patterns.

- Procedure

① Load the standard frame which is provided as a standard accessory

② Press MENU button and select the "CALIB >> STROKE" menu

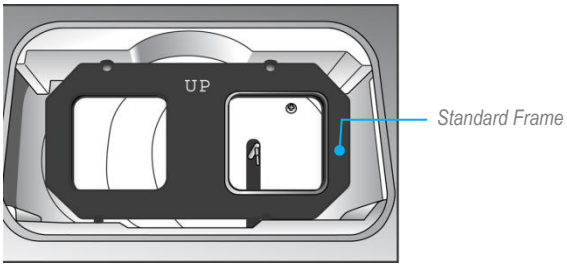
→ Refer to the section 6.1 for menu operation

③ Press the BOTH button two times to trigger the automatic calibration

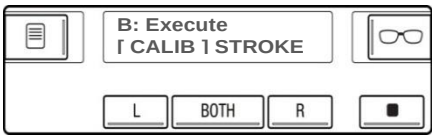
④ If it result in any error, check the movement of the stylus in every direction and try again

→ If it fails again, contact proper service engineer for maintenance

- Preparation for the STROKE calibration



- STROKE calibration menu



8.2 Cleaning

① Sweep the outer surface with soft fabric material.

② When you do not use this device, wrap it with dust cover.

⚠ CAUTION

- Before cleaning your product, disconnect the power cord.
- Since the exterior of the product is easily scratched, be sure to use soft cleaning cloth.
- When cleaning the product, avoid spraying cleansing agent directly onto the product. This may result in the exterior being deformed or the print being removed.
- Since using a strong chemicals, may result in the discoloration or cracking of the product exterior, be sure to use the clean water only.

Standard Accessory

Standard Frame (for Frame Reader Calibration) ·····1
Standard Pattern (for Frame Reader Calibration) ·····1
Pattern Holder ·····1
Fuse (3.15A) ·····2
Power Cable (Frame Reader) ·····1
Option
Barcode Scanner ·····1
9-pin D-Sub Serial Cable (Crossed) ····· 1
Lens Adapter ····· 3

Specification

Frame Reader

Dimension	284(W) x 319(D) x 193(H) mm
Tracing System	3D Binocular
Weight	8 kg
Power Supply	AC 100~240V, 50/60Hz
Power Consumption	32W(Maximum)

System Dimension